

### **REMARKS**

This application includes claims 1 and 3. With this paper, claim 1 is amended, none are added and none are canceled.

#### **Statement of the Substance of the Interview**

An interview between Examiner Arnal C. Lavarias and the undersigned Applicant's representative was held on October 30, 2006 at USPTO. Exhibits shown are PVA film on plastic core roll, PET film on plastic core roll, and pictures showing large scale PVA-on-metallic core roll (to scale). Prior art references Suzuki (U.S. Patent No. 5,762,289) and Teijin Limited (EP 1162227) were discussed with regard to claim 1.

Applicant's representative requested interview with Examiner to discuss the rejection of claim 1 under Suzuki and Teijin Limited. In particular, Applicant's representative noted that the combined teachings of Suzuki and Teijin Limited do not make obvious the limitations recited in claim 1, particularly the use of a metallic core tube for rolling PVA of thickness between 20 and 100 microns. The Examiner suggested that arguments detailing this, along with details of the experimental data noted in the instant specification that includes specific PVA thicknesses may overcome the pending rejections. The Examiner also clarified the claim objections in Section 10 of the Office Action dated 8/2/06, where 'S' appears to be a symbol representing surface roughness, and that units (usually in linear dimensions) is needed for the surface roughness values. Applicant's representative will discuss these points with Applicants and submit a response to the outstanding Office Action dated 8/2/06.

#### **Claim Objections**

Claim 1 is objected to for the reason of using a non-standard unit for surface roughness. With is paper, claim 1 is amended. Support for the amendment can be found in page 6, lines 18-23 of the instant specification. As shown in this paragraph, the definition of the surface roughness is adopted from Japanese Industrial Standard JIS B 0601-1994, in which it is stated that a unit 'S' is equivalent to a linear unit of a micron.

**Claim Rejections under 35 USC §103**

At page 5, section 12 of the Office Action, claims 1 and 3 are rejected under 35 USC §103(a) as being unpatentable over Suzuki in view of Teijin Limited.

The invention as recited in claim 1 is a roll of a polyvinyl alcohol (PVA) film obtained by winding up the PVA film around a cylindrical core tube. The PVA film has a thickness of 20 to 100  $\mu\text{m}$ . The cylindrical core tube is made of a metallic material. The core has a surface roughness (S) of at most 100 $\mu\text{m}$ , a roundness of 0.01 to 0.2 mm and a cylindricity of 0.01 to 1 mm.

Among the cited prior art, the primary reference Suzuki teaches winding up a polymer film on a core to form a film roll. The thickness of the film ranges from 0.01mm to 1mm. The examples set forth by Suzuki, and the materials believed to be particularly effective, are polyester films such as PET and PEN. Winding up a PVA film, which is not a polyester film, by using the core of Suzuki is mentioned in the disclosure (col. 3, line 25) as a possibility, but no example of a PVA film roll is given in Suzuki. The core conditions as recited in claim 1, *i.e.* surface roughness, roundness and cylindricity, are not disclosed in Suzuki.

The secondary reference, Teijin Limited, teaches core conditions including surface roughness and roundness, but the core materials as disclosed are non-metallic materials such as paper, plastic or fiber-reinforced plastic (paragraph [0022]). Further, Teijin Limited explicitly states that the film material in the film roll is a polyester (Title). The thickness of the film is not less than 0.5  $\mu\text{m}$  and not more than 20 $\mu\text{m}$  (paragraph [0019]). Therefore, the film material, the core material and the film thickness as taught by Teijin Limited are different from the limitations of claim 1.

Accordingly, the combined teachings of Suzuki and Teijin Limited do not make obvious the limitations recited in claim 1, particularly the use of a metallic core tube for rolling a PVA film of thickness between 20 and 100 microns.

As it was discussed in the previous response, polyester films and PVA films are different in terms of hygroscopicity. The typical hygroscopicity of a PVA film is 5.0% and that of a PET film is 0.2%. Because of the high hygroscopicity, the surfaces of the PVA films are more

sensitive to the moisture. Hence, PVA films are difficult to wind smoothly around a core, and winding quality of the PVA film rolls can be easily affected by the material and conditions of the core. As presented in the instant specification and in a Declaration under 37 CFR 1.132 filed herewith, the Applicant performed experiments to roll up PVA films of a thickness within the 20-100  $\mu\text{m}$  range on various cores made with different materials and having different surface roughness, roundness and cylindricity values. The experiment results show that PVA film rolls with no defects such as wrinkles and unevenness can only be obtained by using metallic cores having surface roughness, roundness and cylindricity values within the claimed range. The applicant's experiment results and discovery are clearly unexpected by Suzuki and Teijin Limited.

Based on the above, it is believed that claim 1 is patentable in view of Suzuki and Teijin Limited. Withdrawal of the rejection is respectfully requested. Claim 3 depends from claim 1 and therefore is patentable as well.

**Declaration under 37 CFR §1.132**

A Declaration under 37 CFR §1.132 is filed herewith. Information presented in the Declaration is consistent with the disclosure of the invention. In particular, the Declaration reiterates the experiment results presented in pages 11-20 of the instant specification. In addition, it is stated in the Declaration that the thickness of the PVA films used in the experiments is 75  $\mu\text{m}$ , which is within the range of claim 1 and outside that of Teijin Limited. Applicant respectfully requests the consideration of the Declaration by the Office.

**Conclusion**

For all the foregoing reasons it is believed that all claims of the application are in condition for allowance, and their passage to issue is earnestly solicited. Applicant's agent urges the Examiner to call to discuss the present response if anything in the present response is unclear or unpersuasive.

Respectfully submitted,

11/2/06

Date

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